

Environment, Health & Safety Division

January 10, 2007

DIR-07-012

To: A. Paul Alivisatos
Material Sciences Division Director

From: Howard K. Hatayama *HK*
Environment, Health and Safety Division Director

Subject: 2006 Materials Sciences Division Integrated Functional Appraisal

The Environment, Health and Safety Division conducted a triennial Integrated Functional Appraisal (IFA) of the Material Sciences Division during summer and fall 2006. The IFA team focused on work that involves higher or special hazards, formal authorizations, and permits.

The Material Sciences 2006 IFA Report is enclosed. It presents the IFA results and a description of the appraisal process.

Overall compliance with radiological-based authorizations was excellent. Compliance with non-radiological authorizations was varied. There were 33 findings and observations that arose from this IFA. None constituted serious safety hazards, but many reflected lack of attention to detail – incorrect responsible individual, descriptions of work that required updating, not performing or documenting required safety validations, incorrect locations, and the like. Some of the findings were entered into LBNL's Corrective Action Tracking System.

Materials Sciences has made a strong recent commitment to safety by hiring a well qualified and credentialed EH&S Manager (Rick Kelly) and providing him with staff. This internal team should concentrate on ongoing safety issues such as chemical inventory, hazardous waste management, and authorization management. In particular, some MSD researchers do not appear to understand that a formal authorization is absolute: it must be correct and fully authorized, or the work should not proceed.

Your IFA Team Leader, John Seabury, is available to answer any questions (x6547).

cc: Rick Kelly
John Seabury

Lawrence Berkeley National Laboratory

Materials Sciences Division



2006 Integrated Functional Appraisal

IFA Team Members

John Seabury

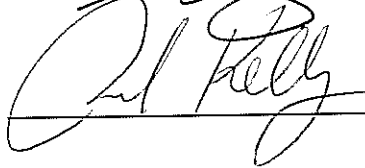
IFA Team Leader - EH&S



1-11-2007

Rick Kelly

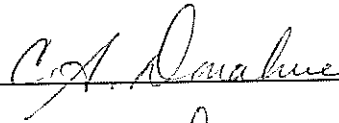
Material Sciences Division
Safety Coordinator



1/11/07

Christine Donahue


Radiation Protection



01/11/07

Kris Szornel

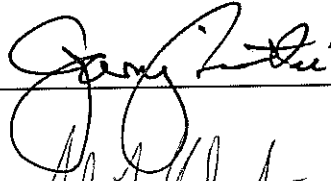
Radiation Protection



Jan 11, 2007

Gary Piermattei

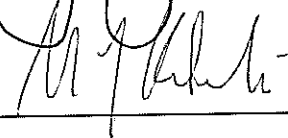
Fire and Life Safety



1/11/07

Matt Kotowski

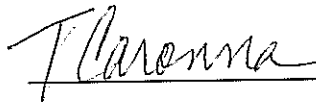
Occupational Safety



1/11/07

Tom Caronna

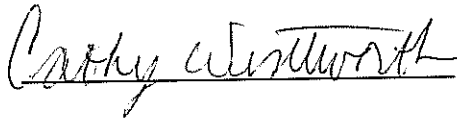
Electrical Safety



1-11-07

Cathy Wentworth

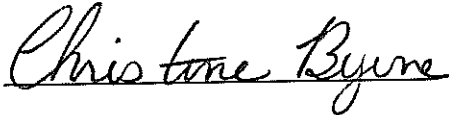
RN - Health Services



1-11-07

Christine Byrne

Human and Animal Regulatory
Committee



1-11-07

Executive Summary

The LBNL Environment, Health and Safety Division conducted an Integrated Functional Appraisal (IFA) of the LBNL Materials Sciences Division (MSD) during mid to late 2006. The scope of the audit included reviewing operations authorized under non-laser Formal Authorizations for compliance with their authorizations, with regulatory requirements, and with good practice. The Appraisal consisted of review of records, field reviews of operations, and report preparation.

Overall compliance with radiological-based authorizations was excellent. Compliance with non-radiological authorizations was varied. There were 33 findings and observations that arose from this IFA. None constituted serious safety hazards, but many reflected lack of attention to detail – incorrect responsible individual, descriptions of work that required updating, not performing or documenting required safety validations, incorrect locations, and the like. Some of the findings were entered into LBNL's Corrective Action Tracking System.

Materials Sciences has made a strong recent commitment to safety by hiring a well qualified and credentialed EH&S Manager and providing him with staff. This internal team should concentrate on ongoing safety issues such as chemical inventory, hazardous waste management, and authorization management. In particular, some MSD researchers do not appear to understand that a formal authorization is absolute: it must be correct and fully authorized, or the work should not proceed.

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1 Introduction

The Integrated Functional Appraisal (IFA) is a key component of Lawrence Berkeley National Laboratory's (LBNL's) integrated safety management (ISM) system, and forms one of the three tiers of LBNL's Environment, Safety and Health (ES&H) self-assessment program. The Environment, Health and Safety (EH&S) Division conducts an IFA for each Laboratory division every three years.

This report presents the results of the Integrated Functional Appraisal of the Materials Sciences Division for 2006. Previous IFAs were conducted in 2000 and 2003. This IFA was conducted during July-November 2006.

1.1 Laboratory Management IFA Oversight

The EH&S Division and Office of Contract Assurance jointly oversee the implementation of the IFA. In response to changing Laboratory program audit needs, a steering committee was formed to assure that maximum audit effectiveness is achieved. The IFA Steering Committee members are listed in **Figure 1**.

Figure 1: 2006 IFA Steering Committee

Member	LBNL Organization
Michelle Flynn	Office of Contract Assurance (OCA) – Chair
John Chernowski	OCA
Paul Blodgett	EH&S - Industrial Hygiene
Jack Salazar	EH&S – Liaison Coordinator
Richard DeBusk	EH&S - Occupational Safety
Ross Fisher	EH&S - IFA Coordinator

Some restructuring of the IFA process has been initiated whereby:

- The IFA team leader field guidance and IFA report template previously provided as separate documents have been combined into one document
- The IFA will include hazardous work¹ program compliance
- Line management authorized work and non-technical work are de-emphasized
- Details of formal work authorizations and hazardous work permits will be audited

¹Work conducted under special hazardous work authorization or permits such as lock-out-tag-out, energized work, confined space work, surface penetration, fire safety, hoisting and rigging activities, ultra-centrifuge use, etc.

- IFA team leaders will gain Steering Committee approval of an appraisal plan before performing the IFA
- The IFA report will be reviewed by the Steering Committee prior to final acceptance by the IFA Coordinator
- Training will be provided for IFA leaders and their teams
- EH&S Liaisons will be allowed the opportunity to lead IFA teams for a division other than their assigned division

1.2 IFA Purpose

The purpose of the IFA is to conduct a technical environmental and occupational safety and health audit and physical inspection of a division's hazardous operations, and the controls and programs used to mitigate the identified hazards. The appraisal evaluates compliance with federal, state and local regulation, LBNL policy, and sound professional health and safety practices. The IFA team reports appraisal results and tenders corrective action and improvement recommendations to the division as appropriate. The IFA process also provides an Operational Awareness window for LBNL's Berkeley Site Office DOE program liaisons.

1.3 Scope

The primary focus of this Appraisal is directed toward work conducted under formal authorizations and hazardous work permits, consistent with guidance for all LBNL Integrated Functional Appraisals. The present IFA reviewed formal authorizations that existed as of late June, 2006. Not included in the scope of this Appraisal are laser operations conducted under formal authorization; laser operations are being reviewed under a different and parallel process.

2 Appraisal Process

2.1 Team

2.1.1 Team selection, roles and responsibilities

Prior to beginning this Appraisal, the IFA Team Leader assembled a list of all formal authorizations existing in the Materials Sciences Division as of June, 2006. Based upon reviewing the authorizations, the following team of Subject Matter Experts was assembled that addressed the hazards of work conducted under these formal authorizations:

John Seabury - IFA Team Leader, MSD Division EH&S Liaison

Christine Donahue – Radiation Protection Group Lead, SME for radiation issues

Kris Szornel – Health Physicist, SME for radiation issues

Gary Piermattei – LBNL Fire Marshall, SME for fire protection issues

Matt Kotowski – Safety Engineer, SME for industrial and laboratory safety issues

Christine Byrne – Program Administrator, SME for human and animal subjects requirements

Tom Caronna – Safety Engineer, SME for electrical safety

Team members participated in the opening conference and in individual reviews as appropriate for their areas of expertise. Each team member compiled a list of his/her findings and recommendations, discussed them with the responsible investigator at the time of the review, and provided them to the IFA Team Leader for consolidation into the final report.

The DOE Berkeley Site Office Observer was invited to all, and participated in most, reviews.

2.1.2 Team meetings

The IFA Team Leader prepared an IFA Plan, and it was reviewed and approved by the IFA Steering Committee. An introductory meeting was held on 26 July, 2006. Most IFA team members attended this meeting, which was also attended by the DOE-BSO Observer and the Materials Sciences Division Safety Coordinator. At this meeting the purpose and scope of the IFA was discussed, roles and responsibilities clarified, and a preliminary schedule of reviews developed. On-site reviews were scheduled by the MSD Division EH&S Safety Administrator. Preliminary results were shared with the IFA Team and the Division Safety Coordinator. A closing conference will be conducted in January 2007.

Additional details on the meetings are presented in Appendix A to this report.

2.2 Planning the Appraisal

2.2.1 Documentation and database reviews

Search of appropriate compilations (e.g., databases) of formal authorizations yielded a list of active formal authorizations for review. This list is contained in Appendix B.

2.2.2 Identification of operations

After the document review, the IFA Team Leader met with the Materials Sciences Division Safety Coordinator to review the list. The Division Safety Coordinator, who concurred that the list represented the Division's

formal authorizations. At that time hazardous operations being conducted at a level below formal authorization (energized work, confined space, surface penetration, etc.) were discussed. The only hazardous operations were occasional operations conducted under a Lockout-Tagout procedure at the machine shops. These operations had been reviewed a few weeks before the beginning of the IFA for other purposes, and there was no value in repeating the evaluation.

2.2.3 IFA plan review

After the IFA Team Leader and Materials Sciences Division Safety Coordinator had concurred on the scope of the onsite reviews to be conducted, the IFA Team Leader developed an IFA Implementation Plan. This plan was submitted to the IFA Steering Committee on June 2, 2006 for review and approval. It was approved on June 30, 2006. On that day the Materials Sciences Division Safety Coordinator left on extended vacation, so the kickoff meeting for the IFA was delayed until mid-July, 2006.

2.2.4 Scheduling interviews and field audits

The Materials Sciences Division EH&S Administrator scheduled all field reviews. Prior to each review by the IFA Team, the Division Safety Coordinator met with the Principal Investigator for that authorization to do a “pre-audit” and resolve those issues that could be...

2.3 Field Audit

Field reviews were scheduled by the MSD Safety Administrator. On the day of the IFA review the MSD Safety Coordinator accompanied the Team on its visit. The reviews generally began with the Principal Investigator describing his/her research and how the activities covered by the authorization fit in. After explaining the research, the PI and the Audit Team reviewed the authorization and walked the space. All Audit Team members present team participated in the review. At the conclusion of the review the Audit Team Lead reviewed the issues noted with the PI and the MSD Safety Coordinator.

Summaries of the issues are presented in Appendices D and E to this report.

2.4 Interviews

A list of the individuals interviewed is contained in Appendix A to this document.

3 Reporting Results

3.1 Formal Authorization and Hazardous Work Permit Discussion

The findings from each authorization reviewed are listed in Appendix D.

3.2 Categorization

3.2.1 Noteworthy practices

3.2.1.1 *Commitment*

There is a strong commitment at the upper levels of MSD administration to providing resources for managing environment, safety and health matters within the Materials Sciences Division. Within the last 18 months the Division has hired a professional credentialed EH&S and Facilities Manager, a part-time EH&S Administrator, and a full time EH&S Technician. This commitment reflects the Division's recognition that the variety and complexity of the ES&H needs within the Division exceed the support capabilities of the institutional ES&H programs, but must be met so that safe and valuable work can continue. This model (strong technical capability within the operating Division) differs from that chosen by other Divisions, and would not necessarily be applicable to all Divisions.

3.2.1.2 *Radiation Safety Compliance*

In general, compliance with requirements for work with radioactive materials or radiation-producing machines is excellent. Users recognize that radioactive materials present hazards that are outside of those typically encountered in their work, and take special care to adhere to safe work practices and proper documentation of the work.

3.2.2 Findings

Findings are listed in Appendix E as items with tracking numbers beginning in "F".

Several trends that represent Opportunities for Improvement are apparent from the findings noted.

3.2.2.1 *Chemical Management System Use*

Conformance with requirements to include all hazardous materials in the Chemical Management System (CMS) is variable. Previous reviews conducted have noted that some laboratories are excellent, while some laboratories are not. Specifically, many laboratories reviewed during this Appraisal did not have gas cylinders included in their inventories. Previous

reviews of CMS compliance conducted internally by Materials Sciences Division have noted a wide range of compliance for other types of chemical containers as well.

3.2.2.2 *Formal Authorizations*

With specific exceptions (especially in the area of radioactive materials and radiation-producing machines, see above), researchers within the Materials Sciences Division, and by extension Materials Sciences management, do not seem to appreciate that a formal authorization is absolute: it constitutes permission to conduct an operation under a specified set of conditions. If the conditions in that authorization do not reflect actual conditions, work must stop until the authorization properly reflects conditions. Numerous examples were noted during this Appraisal:

- Six authorizations were cancelled when the researchers realized that they would be subject to review. Most of these were cancelled because the work was no longer being conducted. Prior to these cancellations these authorizations had been carried on the books with a “no change” condition noted each year, when in fact the work had changed (in one case, the machine that was the subject of the authorization had been disassembled and removed).
- Also, several of the authorizations were originally written in the mid 1990’s and managed as “no change” since then. However, during the field reviews it became apparent that there had in fact been changes to the work (changes in materials, etc.) that should have been reflected in a living, breathing document that were not so reflected.
- One researcher dismissed his authorization as “this piece of paper” during the onsite review by the IFA Team.
- One authorization was for work in a laboratory; when that research expanded and moved to another location on the floor below, work continued for approximately six months without the authorization being updated. Thus, the work in the new location was not authorized.
- One authorization required testing and documentation of the interlock system, but that testing had never been documented. On the day of the onsite review a hastily-posted log sheet indicated that it had been tested within the previous couple of weeks, when the Materials Sciences Division Safety Coordinator did his “pre-audit”.
- One authorization allowed the use of specific health-hazard gases, but during the onsite review the operator stated that

another gas was in use but not listed on the authorization. Thus, that use was unauthorized.

3.2.2.3 *Hazardous Waste Requirements*

Compliance with hazardous waste requirements continues to be problematic (waste management issues were noted in both the 2000 and 2003 Integrated Functional Appraisals). During the July 2005 to June 2006 Performance Year, overall hazardous waste compliance during quarterly audits by EH&S's Hazardous Waste Management Group was as follows:

September 2005 – 100%

December 2005 – 96%

March 2006 – 68%

June 2006 – 87%

The high compliance values in 2005 may reflect the monetary penalties that were applied to research groups with non-compliance shortly before that. While the high results early in the performance year are excellent, the wide variability indicates that this area continues to be a problem.

3.2.3 Observations

Observations are listed in Appendix E as items with tracking numbers beginning in "O".

Many of the observations noted can be characterized as "not following through with the thought". While the concept put forth may be sound, the logic in many cases has not been followed through to get at the fundamentals. Examples include:

- An interlock system exists on a piece of equipment, but what criteria went into the design of the system?
- A grounding system attaches to the building frame, but has that building frame been evaluated to determine it is a good ground?
- A fire extinguisher exists with unclear identification of its contents: there are two conflicting labels on it.
- On-the-Job training is a major component of the safety systems in two laboratories (and correctly so), but the content of that training is not documented.
- Hazardous gases are used in a piece of equipment, and contaminate the reaction chamber. The operator wears a respirator during cleaning of the chamber, but there has not been a proper evaluation as to what the actual exposures are and whether the respirator is adequate protection against that actual exposure.

3.3 Recommendations

Recommendations pertaining to the specific findings and observations are contained in Appendix E. The recommendations below pertain to the general trends noted in Sections 3.2.2 and 3.2.3 above.

3.3.1 Chemical Management/Tracking System

(Finding 3.2.2.1) Materials Sciences should continue with its vigilance with assuring compliance with Chemical Tracking System. This includes both inputting new chemicals and removing chemicals that have been disposed of. Researchers should be able to manage their own inventories. MSD oversight should include sampling of actual inventory as was done during FY 2006 rather than relying upon the CMS “last updated” feature as was done during previous oversight efforts; it is widely known within the Division how to manipulate the automated system to make it appear that the actual inventory is being managed.

3.3.2 Formal Authorizations

(Finding 3.2.2.2) Materials Sciences should develop and implement means to re-educate its staff on the importance and inviolability of formal authorizations, and in particular the jeopardy that operations not in conformance with required formal authorizations puts not only the Division but the entire Laboratory. It should also develop an internal audit program to assure conformance with formal authorizations, until such time as it becomes apparent that researchers are taking their obligations seriously and the internal audit program is not necessary.

3.3.3 Hazardous Waste Operations

(Finding 3.2.2.3) Materials Sciences should continue to increase its vigilance on hazardous waste operations, as it appears that attention seems to be slipping.

3.3.4 Authorizations and Safety Systems

(Observation 3.2.3) Materials Sciences should carefully review all existing formal authorizations to determine that commitments made in the authorizations have been met, and that safety systems such as interlocks are fully documented and supported with testing.

3.3.5 Track Findings in CATS

Materials Sciences should enter all non-administrative findings and observations into the CATS system, and schedule a follow up to assure that all items of concern have been addressed.

4 Corrective Action Tracking and Follow-up

There were a total of 33 findings and observations arising from this Integrated Functional Appraisal. Six were entered into CATS. It is unclear what criteria were used to differentiate between those entered into CATS and those not entered. Appendix E provides details on which were entered into CATS.

5 Conclusion

Materials Sciences is a large division with a wide variety of operations conducted under formal authorizations. Compliance with the requirements of those authorizations ranges from excellent (radioactive materials and radiation producing machines) to variable (non-radiological authorizations). Most of the issues noted for improvement reflect either lack of attention to detail or lack of recognition of the importance of complying with authorization requirements. Use of the recently enhanced internal EH&S Team will improve the performance.

Appendices

Appendix A IFA Team Meetings, Inspections and Interviews

Appendix B IFA Documentation Reference Sheet

Appendix C Operations and Areas Inspected

Appendix D IFA Field Inspection Guide

Appendix E Findings and Observations

Appendix A - IFA Team Meetings, Inspections and Interviews		
Date	Location and Topic	Attendees
07/26/2006	66-316: Kickoff meeting, introduce team, explain approach, distribute background material	John Seabury, Kim Abbott, Dianna Bolt, Christine Donahue, Rick Kelly, Matt Kotowski, Peter Lichty, Larry McLouth
8/24/2006	62-150: Review AHD 148	Marca Doeff, Kim Abbott, Rick Kelly, Cathy Wentworth, John Seabury
8/24/2006	62-145: Review XA 7024	Eduardo Saiz, Christine Donahue, Kim Abbott, Rick Kelly, John Seabury
8/24/2006	72-102: Review RWA 1153	Andy Minor, Christine Donahue, Kim Abbott, Rick Kelly, John Seabury
8/29/2006	2-260A: Review AHD 112	Jeff Beeman, Rick Kelly, Gary Piermattei, John Seabury
8/29/2006	62-219: Review HS 148H01 (Exempt)	Tony Tomsia, Eduardo Saiz, Rick Kelly, John Seabury
8/30/2006	72C-201: Review RWA 5720	Doug Owen, Christine Donahue, Kim Abbott, Rick Kelly, John Seabury
9/1/2006	62-316: Review AHD 2103	Steve Visco, Craig Jacobsen, Hideto Kurokawa, Rick Kelly, John Seabury

Appendix A - IFA Team Meetings, Inspections and Interviews		
Date	Location and Topic	Attendees
9/6/2006	2-405: Review LAS 017, SSA 191, XA 7018	Eric Gullikson, Christine Donahue, Kim Abbott, Rick Kelly, John Seabury
9/6/2006	62-127: Review AHD 166	Kim Man Yu, Tom Caronna, Matt Kotowski, Kris Szornel, Kim Abbott, Rick Kelly, John Seabury
9/11/2006	2-258, 260A: Review AHD BE1013 and AHD GS1061	Eugene Haller, Jeff Beeman, Kris Szornel, Gary Piermattei, Kim Abbott, Gil Torres, Rick Kelly, John Seabury
10/18/2006	62-148, 62-203, 66-433, 70A-3345: Review LAS 021, AHD 2051	Joel Ager, Kris Szornel, Kim Abbott, Gil Torres, Rick Kelly, John Seabury
10/18/2006	62-214: Review AHD 2093	Robert Meagley, Kim Abbott, Rick Kelly, John Seabury
10/18/2006	67-4219: Review XA 7029	Elena Shevchenko, Kris Szornel, Kim Abbott, Rick Kelly, John Seabury
10/31/2006	2-137: Review AHD 2062	Erik Anderson, Dawn Hilken, Rick Kelly, John Seabury
11/02/2006	62-255: Review HS 227H01 (Exempt)	Robert Ritchie, Joel Ager, John Kinney, Kim Abbott, Rick Kelly, Paul Johnson, John Seabury, two grad students, two postdocs (didn't catch names)

Appendix B - IFA Documentation Reference Sheet

DOCUMENT TYPE/TITLE	Reference (Doc #, dates, etc.)
Facility Permits / Authorizations	
Safety Analysis Document (SAD)	None in Division
Final Safety Analysis Document (FSAD)	None in Division
Discharge permits (sewer, storm water, air)	None in Division
NEPA/CEQA documents	None in Division
Formal Work Authorizations	
Activity Hazard Document (AHD)	AHD 112 – onsite review 8/29/2006
	AHD 148 – onsite review 8/24/2006
	AHD 166 – onsite review 9/6/2006
	AHD 2000 – reviewed, cancelled by Division, no onsite review
	AHD 2040 – reviewed, cancelled by Division, no onsite review
	AHD 2047 – reviewed, cancelled by Division, no onsite review
	AHD 2051 – onsite review 10/18/2006
	AHD 2062 – onsite review 10/31/2006
	AHD 2064 – reviewed, cancelled by Division, no onsite review
	AHD 2090 – reviewed, cancelled by Division, no onsite review
	AHD 2093 – onsite review 10/18/2006

DOCUMENT TYPE/TITLE	Reference (Doc #, dates, etc.)
	AHD 2103 – onsite review 9/1/2006
	AHD BE1013 – onsite review 9/11/2006
	AHD BE1014 – reviewed, cancelled by Division, no onsite review
	AHD GS1061 – onsite review 9/11/2006
Radiological Work Authorization (RWA)	RWA 1153 (II) – onsite review 8/24/2006
	RWA 5720 (I) – onsite review 8/30/2006
Radiological Work Permit (RWP)	None in Division
Low Activity Source (LAS)	LAS 017 – onsite review 9/6/2006
	LAS 021 – onsite review 10/18/2006
Sealed Source Authorization (SSA)	SSA 191 – onsite review 9/6/2006
X-ray Authorization (XA)	XA 7018 – onsite review 9/6/2006
	XA 7024 – onsite review 8/24/2006
Human Subjects	HS 148H01 (Exempt) – onsite review 8/29/2006
	HS 227H01 (Exempt) – 10/17/2006
Biological Use Authorizations/Registration	None in Division
Waste Management Group information on Satellite Accumulation Areas (SAAs) and Waste Accumulation Areas (WAAs)	SAA and WAA onsite review 6/6/2006 by EH&S Waste Management Group records (email to Howard Hansen, 7/20/2006)
Other	
Hazardous Work Authorization / Permits	

DOCUMENT TYPE/TITLE	Reference (Doc #, dates, etc.)
Confined Space Permit	Onsite review 9/8/2006 (associated with AHD 166)
Energized Work Permit (A and B)	None in Division
Fire Safety Permit	None in Division
Lock Out Tag Out	None in Division
Surface Penetration Permit	None in Division
Ultracentrifuge Use	None in Division

IFA Team Leader Signature

Date

Appendix C - Operations and Areas Inspected			
Date	Building and Room	Auth. Type/ID	Operation/Work Area Description and Comments
8/24/2006	62-155	AHD 148	Laboratory, discussed work with PI. Minor recommendations.
8/24/2006	62-145	XA 7024	Laboratory, discussed work with PI
8/24/2006	72-102	RWA 1153	Laboratory, discussed work with PI
8/29/2006	2-260A	AHD 112	Laboratory, discussed work with PI. Minor recommendations.
8/29/2006	62-219	HS 148H01	Office, discussed work with PI. Work on this authorization is done by another PI covered under another authorization.
8/30/2006	72C-201	RWA 5720	Conference Room, discussed work with PI
	72A-010, 110, 210		Instrument rooms, inspect work area. Work is pretty well completed.
9/1/2006	62-316	AHD 2103	Laboratory, discussed work with PI. Minor recommendations.
9/6/2006	2-405	LAS 017	Office, discussed work with PI
	2-434	SSA 191 XA 7018	Shop/workroom, reviewed storage & work locations. All excellent.
9/6/2006	62-119, 127, 127A, 127B	AHD 166	Laboratory complex, discussed work with PI. Revised confined space entry procedures. Minor recommendations.
9/11/2006	2-258	AHD GS1061	Laboratory, discussed work with PI. Minor recommendations, will be addressed when AHD is brought into new electronic system.
9/11/2006	2-260A	AHD BE1013	Laboratory, discussed work with PI

Appendix C - Operations and Areas Inspected			
Date	Building and Room	Auth. Type/ID	Operation/Work Area Description and Comments
10/18/2006	62-148, 203 66-433	LAS 021	Laboratories, Conference Room, discussed work with PI
10/18/2006	70A-3345	AHD 2051	Laboratory, discussed work with PI. Work temporarily suspended due to lack of supplies.
10/18/2006	62-214	AHD 2093	Laboratory, discussed work with PI. AHD was for another location, work in progress in new location but AHD revision was incomplete (administrative issue, not a safety issue). Minor recommendations.
10/18/2006	67-4219	XA 7029	Laboratory, discussed work with PI. New authorization, minor recommendations.
10/31/2006	2-137	AHD 2062	Laboratory, discussed work with PI. New PI, not yet listed on AHD. Minor recommendations.
11/02/2006	62-255	HS 227H01	Conference Room, discussed work with PI, co-PI and entire research group working on project.

Appendix D - Field Inspection Guide

Authorization Type: Activity Hazard Document

Date: 8/29/2006

Location(s): 2-260A

Authorization Number/Reference:

112

REVIEWED

Administrative	Yes	No	Not Obs/App	
Authorization approved and signed	X			1
Authorization current	X			
All users listed on authorization	X			
All users trained in accordance with authorization requirements	X			
Authorization accurately reflects work being conducted		X		2
Authorization posted / available in work area	X			
Other:				
Hazardous Work Permits				
Confined Space Permit			X	3
Energized Work Permits (EWP - A, B)			X	
Fire Safety Permit	X			
Lock Out Tag Out (LOTO)			X	
Energized Work Permits (EWP - A, B)			X	
Permit to Penetrate Surface			X	
Work Area Occupational and Environmental Safety and Health				
Access and egress	X			
Biohazards			X	
Chemical Hygiene and Safety	X			
Chemical Management System status	X			
Compressed gasses	X			
Confined space			X	
Cryogenic			X	
Electrical			X	
Energy			X	
Ergonomic considerations			X	
Exit Routes, Emergency Action Plans, and Fire Prevention Plans	X			
Elevated locations and guarding			X	
Lasers			X	
Lead			X	
Machine tools			X	
PPE			X	
Pressure	X			
Soldering			X	
Thermal			X	
Walking and working surfaces	X			
Welding			X	
Other Hazards:				
Radiation Protection				
Radioisotope Journal up to date			X	
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X	
Exposure Control: shielding, dosimetry, PPE, food/drink			X	
Posting & Labeling: rooms, sinks, equipment			X	

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App	
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower	X			
Fire Extinguishers	X			
Flammables Cabinet/Refrigerator				X
Fork Lift / Heavy Equipment Operator				X
Fume Hood	X			
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System	X			
Monitoring / Alarm System	X			
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				
Waste Management				
WAA compliance				X
SAA compliance	X			
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training	X			
Safety concerns, how to communicate concerns	X			
Comments				
1. Beeman is the only user, others may be on user list				
2. Hydrogen detectors not being calibrated				
3. AHD reviewed by Fire Marshall				
Performed By: John Seabury		Date: 8/29/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: AHD

Date: 8/24/2006

Location(s): 62-150

Authorization Number/Reference: AHD 148

Use of Sodium and Lithium Metals ⁽¹⁾

REVIEWED

Administrative	Yes	No	Not Obs/App	
Authorization approved and signed	X			2
Authorization current	X			
All users listed on authorization	X			
All users trained in accordance with authorization requirements	X			
Authorization accurately reflects work being conducted		X		
Authorization posted / available in work area	X			
Other:				
Hazardous Work Permits				
Confined Space Permit			X	3
Energized Work Permits (EWP - A, B)			X	
Fire Safety Permit			X	
Lock Out Tag Out (LOTO)			X	
Energized Work Permits (EWP - A, B)			X	
Permit to Penetrate Surface			X	
Work Area Occupational and Environmental Safety and Health				
Access and egress	X			3
Biohazards			X	
Chemical Hygiene and Safety	X			
Chemical Management System status		X		
Compressed gasses	X			
Confined space			X	
Cryogenic			X	
Electrical	X			
Energy			X	
Ergonomic considerations	X			
Exit Routes, Emergency Action Plans, and Fire Prevention Plans	X			
Elevated locations and guarding			X	
Lasers			X	
Lead			X	
Machine tools			X	
PPE	X			
Pressure	X			
Soldering			X	
Thermal			X	
Walking and working surfaces	X			
Welding			X	
Other Hazards:				
Radiation Protection				
Radioisotope Journal up to date			X	
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X	
Exposure Control: shielding, dosimetry, PPE, food/drink			X	
Posting & Labeling: rooms, sinks, equipment			X	

Appendix D - Field Inspection Guide

	REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App
Autoclave			X
Biosafety Cabinet			X
Clean Room			X
Crane Hoist			X
Eyewash / Safety Shower	X		
Fire Extinguishers	X		
Flammables Cabinet/Refrigerator			X
Fork Lift / Heavy Equipment Operator			X
Fume Hood			X
Glove Box	X		
Hand and Shoe Counter			X
Local Exhaust System			X
Monitoring / Alarm System			X
Photoprocessing Equipment			X
Sonicator			X
Ultracentrifuge			X
Other			
Waste Management			
WAA compliance			X
SAA compliance	X		
Environmental Services			
Air emissions			X
Sanitary sewer discharge			X
Storage tanks - aboveground or underground			X
Storm water management			X
Treatment systems			X
Field Interviews			
Knowledge of authorizations, procedures, etc.	X		
Knowledge of safety systems	X		
On-the-job training	X		
Safety concerns, how to communicate concerns	X		
Comments			
1. AHD is presently being rewritten in electronic system, title will change to reflect changes in research since 1994.			
2. Sodium no longer in use, but should add other reactive materials to AHD.			
3. Forming gas not listed in CMS			
4. In new AHD, describe content of OJT.			
5. Rick Kelly to check with LBNL-FD as to whether Metl-X or Lith-X is in the Class-D extinguisher			
6. Consider adding bubbler to glovebox for pressure relief			
Performed By: John Seabury		Date: 8/24/06	
Name / Signature			
Reviewed By: John Seabury		Date: 12/15/2006	
Name / Signature IFA Team Leader			

Appendix D - Field Inspection Guide

Authorization Type: Activity Hazard Document

Date: 9/6/2006

Location(s): 62-127

Authorization Number/Reference:

166

REVIEWED

Administrative	Yes	No	Not Obs/App		
Authorization approved and signed	X				
Authorization current	X				
All users listed on authorization	X				
All users trained in accordance with authorization requirements	X				
Authorization accurately reflects work being conducted	X				
Authorization posted / available in work area	X				
Other:					
Hazardous Work Permits					
Confined Space Permit	X			1	
Energized Work Permits (EWP - A, B)			X		
Fire Safety Permit			X		
Lock Out Tag Out (LOTO)			X		
Energized Work Permits (EWP - A, B)			X		
Permit to Penetrate Surface			X		
Work Area Occupational and Environmental Safety and Health					
Access and egress	X			2	
Biohazards			X		
Chemical Hygiene and Safety	X				
Chemical Management System status	X				
Compressed gasses	X				
Confined space	X				
Cryogenic	X				
Electrical		X			
Energy	X				
Ergonomic considerations	X				
Exit Routes, Emergency Action Plans, and Fire Prevention Plans	X				
Elevated locations and guarding			X		
Lasers			X	3	
Lead			X		
Machine tools			X		
PPE			X		
Pressure		X			
Soldering			X		
Thermal			X		
Walking and working surfaces			X		
Welding			X		
Other Hazards:					
Radiation Protection					
Radioisotope Journal up to date			X		
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X		
Exposure Control: shielding, dosimetry, PPE, food/drink			X		
Posting & Labeling: rooms, sinks, equipment			X		

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App	
Autoclave			X	
Biosafety Cabinet			X	
Clean Room			X	
Crane Hoist			X	
Eyewash / Safety Shower			X	
Fire Extinguishers	X			
Flammables Cabinet/Refrigerator			X	
Fork Lift / Heavy Equipment Operator			X	
Fume Hood			X	
Glove Box			X	
Hand and Shoe Counter			X	
Local Exhaust System			X	
Monitoring / Alarm System	X			
Photoprocessing Equipment			X	
Sonicator			X	
Ultracentrifuge			X	
Other				
Waste Management				
WAA compliance			X	
SAA compliance			X	
Environmental Services				
Air emissions			X	
Sanitary sewer discharge			X	
Storage tanks - aboveground or underground			X	
Storm water management			X	
Treatment systems			X	
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training	X			
Safety concerns, how to communicate concerns	X			
Comments				
1 Review Confined Spaces entry procedures for vessel.				
2. Minor electrical safety issues to be corrected off-line with Tom Caronna				
3. Interlock testing not documented				
4. Review interlock design/construction				
5. Recommend removing unused beamline to improve access around system.				
6. Evaluate tank for derated pressure due to added screw holes (electrical)				
7. Evaluate existing Engineering Note re: operation of sulfur hexafluoride vessels.				
8. Tom Caronna will evaluate integrity of building ground.				
Performed By: John Seabury		Date: 9/6/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: AHD

Date: 10/19/2006

Location(s): 70A-3345

Authorization Number/Reference:

2051

REVIEWED

Administrative	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other:			
Hazardous Work Permits			
Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X
Work Area Occupational and Environmental Safety and Health			
Access and egress	X		
Biohazards			X
Chemical Hygiene and Safety	X		
Chemical Management System status		X	
Compressed gasses		X	
Confined space			X
Cryogenic			X
Electrical	X		
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans	X		
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure	X		
Soldering			X
Thermal			X
Walking and working surfaces	X		
Welding			X
Other Hazards:			
Radiation Protection			
Radioisotope Journal up to date			X
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X
Exposure Control: shielding, dosimetry, PPE, food/drink			X
Posting & Labeling: rooms, sinks, equipment			X

(1)
(1)

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower				X
Fire Extinguishers				X
Flammables Cabinet/Refrigerator				X
Fork Lift / Heavy Equipment Operator				X
Fume Hood	X			
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System	X			
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other Gas Cabinets (2)	X			
Waste Management				
WAA compliance				X
SAA compliance				X
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training	X			
Safety concerns, how to communicate concerns	X			
Comments				
1 - several compressed gas cylinders not entered into Chem Management System				
Work is in progress, but temporarily halted awaiting				
Performed By: John Seabury		Date: 10/19/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: Activity Hazard Document

Date: 10/31/2006

Location(s): 2-137

Authorization Number/Reference:

AHD 2062

REVIEWED

Administrative	Yes	No	Not Obs/App	
Authorization approved and signed	X			(1)
Authorization current	X			
All users listed on authorization	X			
All users trained in accordance with authorization requirements	X			
Authorization accurately reflects work being conducted		X		
Authorization posted / available in work area	X			
Other:				
Hazardous Work Permits				
Confined Space Permit			X	(2)
Energized Work Permits (EWP - A, B)			X	
Fire Safety Permit			X	
Lock Out Tag Out (LOTO)	X			
Energized Work Permits (EWP - A, B)			X	
Permit to Penetrate Surface			X	
Work Area Occupational and Environmental Safety and Health				
Access and egress	X			(2)
Biohazards			X	
Chemical Hygiene and Safety	X			
Chemical Management System status	X			
Compressed gasses	X			
Confined space			X	
Cryogenic	X			
Electrical	X			
Energy			X	
Ergonomic considerations	X			
Exit Routes, Emergency Action Plans, and Fire Prevention Plans	X			
Elevated locations and guarding			X	
Lasers			X	
Lead			X	
Machine tools			X	
PPE	X			
Pressure	X			
Soldering			X	
Thermal			X	
Walking and working surfaces			X	
Welding			X	
Other Hazards:			X	
Radiation Protection				
Radioisotope Journal up to date			X	
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X	
Exposure Control: shielding, dosimetry, PPE, food/drink			X	
Posting & Labeling: rooms, sinks, equipment			X	

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room		X		
Crane Hoist				X
Eyewash / Safety Shower		X		
Fire Extinguishers		X		
Flammables Cabinet/Refrigerator		X		
Fork Lift / Heavy Equipment Operator				X
Fume Hood		X		
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System		X		
Monitoring / Alarm System		X		
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				
Waste Management				
WAA compliance				X
SAA compliance		X		
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.		X		
Knowledge of safety systems		X		
On-the-job training		X		
Safety concerns, how to communicate concerns		X		
Comments				
(1) PI on AHD is not the same as actual PI, not a safety issue				
(2) LN dewar needs to be secured against movement				
Performed By: John Seabury		Date: 10/31/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: Activity Hazard Document

Date: 11/18/2006

Location(s): 62-214

Authorization Number/Reference:

2093

REVIEWED

Administrative	Yes	No	Not Obs/App	
Authorization approved and signed		X		(1)
Authorization current		X		
All users listed on authorization	X			
All users trained in accordance with authorization requirements	X			
Authorization accurately reflects work being conducted	X			
Authorization posted / available in work area	X			
Other:			X	
Hazardous Work Permits				
Confined Space Permit			X	
Energized Work Permits (EWP - A, B)			X	
Fire Safety Permit			X	
Lock Out Tag Out (LOTO)			X	
Energized Work Permits (EWP - A, B)			X	
Permit to Penetrate Surface			X	
Work Area Occupational and Environmental Safety and Health				
Access and egress	X			(2)
Biohazards			X	
Chemical Hygiene and Safety	X			
Chemical Management System status		X		
Compressed gasses	X			
Confined space			X	
Cryogenic	X			
Electrical			X	
Energy			X	
Ergonomic considerations	X			
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X	(3)
Elevated locations and guarding			X	
Lasers			X	
Lead			X	
Machine tools			X	
PPE		X		
Pressure			X	
Soldering			X	
Thermal			X	
Walking and working surfaces	X			
Welding			X	
Other Hazards:			X	
Radiation Protection				
Radioisotope Journal up to date			X	
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X	
Exposure Control: shielding, dosimetry, PPE, food/drink			X	
Posting & Labeling: rooms, sinks, equipment			X	

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App	
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower	X			
Fire Extinguishers	X			
Flammables Cabinet/Refrigerator	X			
Fork Lift / Heavy Equipment Operator				X
Fume Hood	X			
Glove Box	X			
Hand and Shoe Counter				X
Local Exhaust System				X
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				X
Waste Management				
WAA compliance				X
SAA compliance			X	
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training	X			
Safety concerns, how to communicate concerns	X			
Comments				
(1) AHD was for previous laboratory in 62-308, moved to this lab in Spring 2006 but had not updated AHD to this new location. (2) Provide spill containment trays on upper shelves of flammable liquid storage cabinets (3) Numerous gas cylinders in lab need to be added to chemical inventory system (4) Safety glasses stored in the open, provide clean, protected storage (5) OJT on glovebox is a critical control, need to document content, completion of the training (6) Need to establish the collection bottle from the HPLC as a Satellite Accumulation Area				
Performed By: John Seabury <div style="text-align: center;">Name / Signature</div>		Date: 11/18/2006 <div style="text-align: center;">_____</div>		
Reviewed By: John Seabury <div style="text-align: center;">Name / Signature IFA Team Leader</div>		Date: 12/15/2006 <div style="text-align: center;">_____</div>		

Appendix D - Field Inspection Guide

Authorization Type: Activity Hazard Document

Date: 9/1/2006

Location(s): 62-316

Authorization Number/Reference:

2103

REVIEWED

Administrative

	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other:			

(1)

Hazardous Work Permits

Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X

Work Area Occupational and Environmental Safety and Health

Access and egress	X		
Biohazards			X
Chemical Hygiene and Safety	X		
Chemical Management System status		X	
Compressed gasses	X		
Confined space			X
Cryogenic			X
Electrical	X		
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans	X		
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE	X		
Pressure			X
Soldering			X
Thermal	X		
Walking and working surfaces	X		
Welding			X
Other Hazards:			

(2)

Radiation Protection

Radioisotope Journal up to date			X
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X
Exposure Control: shielding, dosimetry, PPE, food/drink			X
Posting & Labeling: rooms, sinks, equipment			X

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower		X		
Fire Extinguishers		X		
Flammables Cabinet/Refrigerator		X		
Fork Lift / Heavy Equipment Operator				X
Fume Hood		X		
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System		X		
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				X
Waste Management				
WAA compliance				X
SAA compliance				X
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.		X		
Knowledge of safety systems		X		
On-the-job training		X		
Safety concerns, how to communicate concerns		X		
Comments				
(1) AHD lists H ₂ S up to 1000 ppm, now using 48 ppm. No safety issue.				
(2) Several gas cylinders are not listed in Chemical Management System, need to add.				
Performed By: John Seabury		Date: 9/1/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: Activity Hazard Document

Date: 9/11/2006

Location(s): 2-260A

Authorization Number/Reference:

BE1013

REVIEWED

Administrative	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other:			
Hazardous Work Permits			
Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X
Work Area Occupational and Environmental Safety and Health			
Access and egress	X		
Biohazards			X
Chemical Hygiene and Safety			X
Chemical Management System status			X
Compressed gasses	X		
Confined space			X
Cryogenic			X
Electrical			X
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans	X		
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure			X
Soldering			X
Thermal			X
Walking and working surfaces	X		
Welding			X
Other Hazards:			
Radiation Protection			
Radioisotope Journal up to date			X
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X
Exposure Control: shielding, dosimetry, PPE, food/drink			X
Posting & Labeling: rooms, sinks, equipment			X

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower	X			
Fire Extinguishers	X			
Flammables Cabinet/Refrigerator				X
Fork Lift / Heavy Equipment Operator				X
Fume Hood	X			
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System	X			
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				
Waste Management				
WAA compliance				X
SAA compliance				X
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training	X			
Safety concerns, how to communicate concerns	X			
Comments				
Performed By: John Seabury		Date: _____		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: Activity Hazard Document

Date: 9/11/2006

Location(s): 2-258

Authorization Number/Reference:

GS1061

REVIEWED

Administrative	Yes	No	Not Obs/App		
Authorization approved and signed	X			(1)	
Authorization current	X				
All users listed on authorization	X				
All users trained in accordance with authorization requirements	X				
Authorization accurately reflects work being conducted		X			
Authorization posted / available in work area	X				
Other:					
Hazardous Work Permits					
Confined Space Permit			X	(2)	
Energized Work Permits (EWP - A, B)			X		
Fire Safety Permit			X		
Lock Out Tag Out (LOTO)	X				
Energized Work Permits (EWP - A, B)			X		
Permit to Penetrate Surface			X		
Work Area Occupational and Environmental Safety and Health					
Access and egress	X			(3)	
Biohazards			X		
Chemical Hygiene and Safety	X				
Chemical Management System status	X				
Compressed gasses	X				
Confined space			X		
Cryogenic	X			(4)	
Electrical		X			
Energy	X				
Ergonomic considerations	X				
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X		
Elevated locations and guarding			X		
Lasers			X	(5)	
Lead			X		
Machine tools			X		
PPE			X		
Pressure			X		
Soldering			X		
Thermal			X	(6)	
Walking and working surfaces			X		
Welding			X		
Other Hazards:			X		
Radiation Protection					
Radioisotope Journal up to date	X				(7)
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping	X				
Exposure Control: shielding, dosimetry, PPE, food/drink	X				
Posting & Labeling: rooms, sinks, equipment	X				

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower		X		
Fire Extinguishers		X		
Flammables Cabinet/Refrigerator		X		
Fork Lift / Heavy Equipment Operator				X
Fume Hood		X		
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System		X		
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				
Waste Management				
WAA compliance				X
SAA compliance		X		
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.		X		
Knowledge of safety systems		X		
On-the-job training		X		
Safety concerns, how to communicate concerns		X		
Comments				
<p>(1) Silicon tetrafluoride in use but not listed on AHD</p> <p>(2) Monitor airborne metals exposure during cleaning of reactor</p> <p>(3) Verify adequacy of grounding wand by EH&S</p> <p>(4) Survey X-ray exposures during operation of machine</p>				
Performed By: John Seabury		Date: 9/11/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: Human Subjects EXEMPT

Date: 8/29/2006

Location(s): office review

Authorization Number/Reference:

148H01

REVIEWED

Administrative	Yes	No	Not Obs/App	
Authorization approved and signed	X			(1)
Authorization current	X			
All users listed on authorization	X			
All users trained in accordance with authorization requirements	X			
Authorization accurately reflects work being conducted	X			
Authorization posted / available in work area	X			
Other:				
Hazardous Work Permits				
Confined Space Permit			X	
Energized Work Permits (EWP - A, B)			X	
Fire Safety Permit			X	
Lock Out Tag Out (LOTO)			X	
Energized Work Permits (EWP - A, B)			X	
Permit to Penetrate Surface			X	
Work Area Occupational and Environmental Safety and Health				
Access and egress			X	
Biohazards	X			
Chemical Hygiene and Safety			X	
Chemical Management System status			X	
Compressed gasses			X	
Confined space			X	
Cryogenic			X	
Electrical			X	
Energy			X	
Ergonomic considerations			X	
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X	
Elevated locations and guarding			X	
Lasers			X	
Lead			X	
Machine tools			X	
PPE			X	
Pressure			X	
Soldering			X	
Thermal			X	
Walking and working surfaces			X	
Welding			X	
Other Hazards:				
Radiation Protection				
Radioisotope Journal up to date			X	
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X	
Exposure Control: shielding, dosimetry, PPE, food/drink			X	
Posting & Labeling: rooms, sinks, equipment			X	

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App	
Autoclave			X	
Biosafety Cabinet			X	
Clean Room			X	
Crane Hoist			X	
Eyewash / Safety Shower			X	
Fire Extinguishers			X	
Flammables Cabinet/Refrigerator			X	
Fork Lift / Heavy Equipment Operator			X	
Fume Hood			X	
Glove Box			X	
Hand and Shoe Counter			X	
Local Exhaust System			X	
Monitoring / Alarm System			X	
Photoprocessing Equipment			X	
Sonicator			X	
Ultracentrifuge			X	
Other			X	
Waste Management				
WAA compliance			X	
SAA compliance			X	
Environmental Services				
Air emissions			X	
Sanitary sewer discharge			X	
Storage tanks - aboveground or underground			X	
Storm water management			X	
Treatment systems			X	
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training	X			
Safety concerns, how to communicate concerns	X			
Comments				
<p>(1) Tomsia is listed as PI, but Rob Ritchie actually does the work under another authorization. No work on this authorization is currently in progress.</p>				
<div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> <p>Performed By: John Seabury _____</p> <p style="text-align: center;">Name / Signature</p> </div> <div style="width: 45%;"> <p>Date: _____</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> <p>Reviewed By: John Seabury _____</p> <p style="text-align: center;">Name / Signature IFA Team Leader</p> </div> <div style="width: 45%;"> <p>Date: 12/15/2006 _____</p> </div> </div>				

Appendix D - Field Inspection Guide

Authorization Type: Human Subjects

Date: 11/2/2006

Location(s): 62-255

Authorization Number/Reference:

227H01 (Exempt)

REVIEWED

Administrative	Yes	No	Not Obs/App
Authorization approved and signed	x		
Authorization current	x		
All users listed on authorization			x
All users trained in accordance with authorization requirements	x		
Authorization accurately reflects work being conducted	x		
Authorization posted / available in work area	x		
Other:			
Hazardous Work Permits			
Confined Space Permit			x
Energized Work Permits (EWP - A, B)			x
Fire Safety Permit			x
Lock Out Tag Out (LOTO)			x
Energized Work Permits (EWP - A, B)			x
Permit to Penetrate Surface			x
Work Area Occupational and Environmental Safety and Health			
Access and egress			x
Biohazards			x
Chemical Hygiene and Safety			x
Chemical Management System status			x
Compressed gasses			x
Confined space			x
Cryogenic			x
Electrical			x
Energy			x
Ergonomic considerations			x
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			x
Elevated locations and guarding			x
Lasers			x
Lead			x
Machine tools			x
PPE			x
Pressure			x
Soldering			x
Thermal			x
Walking and working surfaces			x
Welding			x
Other Hazards:			x
Radiation Protection			
Radioisotope Journal up to date			x
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			x
Exposure Control: shielding, dosimetry, PPE, food/drink			x
Posting & Labeling: rooms, sinks, equipment			x

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower				X
Fire Extinguishers				X
Flammables Cabinet/Refrigerator				X
Fork Lift / Heavy Equipment Operator				X
Fume Hood				X
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System				X
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				X
Waste Management				
WAA compliance				X
SAA compliance				X
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.		X		
Knowledge of safety systems		X		
On-the-job training		X		
Safety concerns, how to communicate concerns		X		
Comments				
Review focused on whether exemption had been properly granted, not on safety in work.				
Performed By: John Seabury		Date: 11/2/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: Sealed Source Authorization

Date: 9/6/2006

Location(s): 002-400

Authorization Number/Reference: LAS 017

REVIEWED

Administrative	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other:			
Hazardous Work Permits			
Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X
Work Area Occupational and Environmental Safety and Health			
Access and egress			X
Biohazards			X
Chemical Hygiene and Safety			X
Chemical Management System status			X
Compressed gasses			X
Confined space			X
Cryogenic			X
Electrical			X
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure			X
Soldering			X
Thermal			X
Walking and working surfaces			X
Welding			X
Other Hazards:			X
Radiation Protection			
Radioisotope Journal up to date - Not required for LAS			X
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping (as applicable)			X
Exposure Control: shielding, dosimetry, PPE, food/drink (as applicable)			X
Posting & Labeling: rooms, sinks, equipment	X		

Appendix D - Field Inspection Guide

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		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower				X
Fire Extinguishers				X
Flammables Cabinet/Refrigerator				X
Fork Lift / Heavy Equipment Operator				X
Fume Hood				X
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System				X
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				X
Waste Management				
WAA compliance				X
SAA compliance				X
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.		X		
Knowledge of safety systems		X		
On-the-job training -		X		
Safety concerns, how to communicate concerns		X		
Comments				
<p>Low-level authorization for use of natural Thorium and U-238 at ALS. Discussion during walkthrough indicated that this authorization may not be needed in the future. The assigned health physicist was notified and has since terminated the LAS. The radioactive material has been properly dispositioned.</p>				
<p>Performed By: Christine Donahue</p> <p>_____ Name / Signature</p>		<p>Date: 9/6/2006</p> <p>_____</p>		
<p>Reviewed By: John Seabury</p> <p>_____ Name / Signature IFA Team Leader</p>		<p>Date: 12/15/2006</p> <p>_____</p>		

Appendix D - Field Inspection Guide

Authorization Type: Sealed Source Authorization

Date: 10/18/2006

Location(s): 62-148, 66-433

Authorization Number/Reference: LAS 021

REVIEWED

Administrative	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area			X
Other:			
Hazardous Work Permits			
Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X
Work Area Occupational and Environmental Safety and Health			
Access and egress			
Biohazards			X
Chemical Hygiene and Safety			X
Chemical Management System status			X
Compressed gasses			X
Confined space			X
Cryogenic			X
Electrical			X
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure			X
Soldering			X
Thermal			X
Walking and working surfaces			X
Welding			X
Other Hazards:			X
Radiation Protection			
Radioisotope Journal up to date			X
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X
Exposure Control: shielding, dosimetry, PPE, food/drink			X
Posting & Labeling: rooms, sinks, equipment	X		

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App	
Autoclave			X	
Biosafety Cabinet			X	
Clean Room			X	
Crane Hoist			X	
Eyewash / Safety Shower			X	
Fire Extinguishers			X	
Flammables Cabinet/Refrigerator			X	
Fork Lift / Heavy Equipment Operator			X	
Fume Hood			X	
Glove Box			X	
Hand and Shoe Counter			X	
Local Exhaust System			X	
Monitoring / Alarm System			X	
Photoprocessing Equipment			X	
Sonicator			X	
Ultracentrifuge			X	
Other				
Waste Management				
WAA compliance			X	
SAA compliance			X	
Environmental Services				
Air emissions			X	
Sanitary sewer discharge			X	
Storage tanks - aboveground or underground			X	
Storm water management			X	
Treatment systems			X	
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training	X			
Safety concerns, how to communicate concerns	X			
Comments				
Controlled Area for radiation protection established at B062-148 and B066-433. No work present therefore temporary RSA did not need to be established.				
Performed By: Kris Szornel <div style="text-align: center;">Name / Signature</div>		Date: 10/18/2006 <div style="text-align: center;">Date</div>		
Reviewed By: John Seabury <div style="text-align: center;">Name / Signature IFA Team Leader</div>		Date: 12/15/2006 <div style="text-align: center;">Date</div>		

Appendix D - Field Inspection Guide

Authorization Type: Radiological Work Authorization

Date: 8/24/2006

Location(s): 72-Electron Microscopy Center

Authorization Number/Reference: RWA 1153

REVIEWED

Administrative

	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other:			

Hazardous Work Permits

Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X

Work Area Occupational and Environmental Safety and Health

Access and egress	X		
Biohazards			X
Chemical Hygiene and Safety	X		
Chemical Management System status	X		
Compressed gasses			X
Confined space			X
Cryogenic			X
Electrical			X
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure			X
Soldering			X
Thermal			X
Walking and working surfaces			X
Welding			X
Other Hazards:			X

Radiation Protection

Radioisotope Journal up to date	X		
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping	X		
Exposure Control: shielding, dosimetry, PPE, food/drink	X		
Posting & Labeling: rooms, sinks, equipment	X		

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower	X			
Fire Extinguishers				X
Flammables Cabinet/Refrigerator				X
Fork Lift / Heavy Equipment Operator				X
Fume Hood	X			
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System				X
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				
Waste Management				
WAA compliance				X
SAA compliance	X			
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training		X		
Safety concerns, how to communicate concerns	X			
Comments				
(1) Although the PI is the only radiation user currently handling the U-238, other workers are required to have documented On-the-Job Training (OJT) prior to first use. To ensure that this happens, blank OJT forms should be on file in the RIJ. RPG will provide these forms to the PI. Overall, excellent compliance.				
Performed By: Christine Donahue		Date: 8/25/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: Radiological Work Authorization

Date: 8/30/2006

Location(s): 72-150

Authorization Number/Reference: RWA 5720

REVIEWED

Administrative	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other:			
Hazardous Work Permits			
Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X
Work Area Occupational and Environmental Safety and Health			
Access and egress			X
Biohazards			X
Chemical Hygiene and Safety			X
Chemical Management System status			X
Compressed gasses			X
Confined space			X
Cryogenic			X
Electrical			X
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure			X
Soldering			X
Thermal			X
Walking and working surfaces			X
Welding			X
Other Hazards:			X
Radiation Protection			
Radioisotope Journal up to date	X		
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping (as applicable)			X
Exposure Control: shielding, dosimetry, PPE, food/drink (as applicable)			X
Posting & Labeling: rooms, sinks, equipment	X		

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Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App	
Autoclave			X	
Biosafety Cabinet			X	
Clean Room			X	
Crane Hoist			X	
Eyewash / Safety Shower			X	
Fire Extinguishers			X	
Flammables Cabinet/Refrigerator			X	
Fork Lift / Heavy Equipment Operator			X	
Fume Hood			X	
Glove Box			X	
Hand and Shoe Counter			X	
Local Exhaust System			X	
Monitoring / Alarm System			X	
Photoprocessing Equipment			X	
Sonicator			X	
Ultracentrifuge			X	
Other			X	
Waste Management				
WAA compliance			X	
SAA compliance			X	
Environmental Services				
Air emissions			X	
Sanitary sewer discharge			X	
Storage tanks - aboveground or underground			X	
Storm water management			X	
Treatment systems			X	
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training -	X			
Safety concerns, how to communicate concerns	X			
Comments				
<p>RWA for the Electron Microscope Facility/ There was discussion about whether a formal authorization RWA is needed. The Health Physicist agreed to conduct surveys during operation of the microscopes to determine whether an RWA is required. Following this study, it was determined that a low-level authorization is sufficient and the RWA will be terminated and replaced with a low-level machine authorization.</p>				
Performed By: Christine Donahue <div style="text-align: center;">Name / Signature</div>		Date: 8/30/2006		
Reviewed By: John Seabury <div style="text-align: center;">Name / Signature IFA Team Leader</div>		Date: 12/15/2006		

Appendix D - Field Inspection Guide

Authorization Type: Sealed Source Authorization

Date: 9/6/2006

Location(s): 002-434

Authorization Number/Reference: SSA 191

REVIEWED

Administrative	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other:			
Hazardous Work Permits			
Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X
Work Area Occupational and Environmental Safety and Health			
Access and egress			X
Biohazards			X
Chemical Hygiene and Safety			X
Chemical Management System status			X
Compressed gasses			X
Confined space			X
Cryogenic			X
Electrical			X
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure			X
Soldering			X
Thermal			X
Walking and working surfaces			X
Welding			X
Other Hazards:			X
Radiation Protection			
Radioisotope Journal up to date SSA Journal	X		
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping (as applicable)	X		
Exposure Control: shielding, dosimetry, PPE, food/drink (as applicable)	X		
Posting & Labeling: rooms, sinks, equipment	X		

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Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs		Yes	No	Not Obs/App
Autoclave				X
Biosafety Cabinet				X
Clean Room				X
Crane Hoist				X
Eyewash / Safety Shower				X
Fire Extinguishers				X
Flammables Cabinet/Refrigerator				X
Fork Lift / Heavy Equipment Operator				X
Fume Hood				X
Glove Box				X
Hand and Shoe Counter				X
Local Exhaust System				X
Monitoring / Alarm System				X
Photoprocessing Equipment				X
Sonicator				X
Ultracentrifuge				X
Other				X
Waste Management				
WAA compliance				X
SAA compliance				X
Environmental Services				
Air emissions				X
Sanitary sewer discharge				X
Storage tanks - aboveground or underground				X
Storm water management				X
Treatment systems				X
Field Interviews				
Knowledge of authorizations, procedures, etc.		X		
Knowledge of safety systems		X		
On-the-job training - Excellent		X		
Safety concerns, how to communicate concerns		X		
Comments				
Low-level sealed source authorization. Three exempt sources are stored in a small chamber in				
Performed By: Christine Donahue		Date: 9/6/2006		
Name / Signature				
Reviewed By: John Seabury		Date: 12/15/2006		
Name / Signature IFA Team Leader				

Appendix D - Field Inspection Guide

Authorization Type: X-ray Use Authorization

Date: 9/6/2006

Location(s): 062-145

Authorization Number/Reference: XA7018

REVIEWED

Administrative	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other: Renewed authorization routing for signature			
Hazardous Work Permits			
Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X
Work Area Occupational and Environmental Safety and Health			
Access and egress			X
Biohazards			X
Chemical Hygiene and Safety			X
Chemical Management System status			X
Compressed gasses			X
Confined space			X
Cryogenic			X
Electrical			X
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure			X
Soldering			X
Thermal			X
Walking and working surfaces			X
Welding			X
Other Hazards:			X
Radiation Protection			
Radioisotope Journal up to date -X-RAY Journal	X		
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X
Exposure Control: shielding, dosimetry, PPE, food/drink	X		
Posting & Labeling: rooms, sinks, equipment	X		

Appendix D - Field Inspection Guide

	REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App
Autoclave			X
Biosafety Cabinet			X
Clean Room			X
Crane Hoist			X
Eyewash / Safety Shower			X
Fire Extinguishers			X
Flammables Cabinet/Refrigerator			X
Fork Lift / Heavy Equipment Operator			X
Fume Hood			X
Glove Box			X
Hand and Shoe Counter			X
Local Exhaust System			X
Monitoring / Alarm System			X
Photoprocessing Equipment			X
Sonicator			X
Ultracentrifuge			X
Other			X
Waste Management			
WAA compliance			X
SAA compliance			X
Environmental Services			
Air emissions			X
Sanitary sewer discharge			X
Storage tanks - aboveground or underground			X
Storm water management			X
Treatment systems			X
Field Interviews			
Knowledge of authorizations, procedures, etc.	X		
Knowledge of safety systems	X		
On-the-job training - Excellent	X		
Safety concerns, how to communicate concerns	X		
 Comments			
Performed By: Christine Donahue <div style="text-align: center; border-top: 1px solid black; margin-top: 5px;">Name / Signature</div>	Date: 9/6/2006 <div style="border-top: 1px solid black; margin-top: 5px;"></div>		
Reviewed By: John Seabury <div style="text-align: center; border-top: 1px solid black; margin-top: 5px;">Name / Signature IFA Team Leader</div>	Date: 12/15/2006 <div style="border-top: 1px solid black; margin-top: 5px;"></div>		

Appendix D - Field Inspection Guide

Authorization Type: X-ray Authorization

Date: 8/24/2006

Location(s): 62-203

Authorization Number/Reference: XA 7024

REVIEWED

Administrative

	Yes	No	Not Obs/App
Authorization approved and signed	X		
Authorization current	X		
All users listed on authorization	X		
All users trained in accordance with authorization requirements	X		
Authorization accurately reflects work being conducted	X		
Authorization posted / available in work area	X		
Other:			

Hazardous Work Permits

Confined Space Permit			X
Energized Work Permits (EWP - A, B)			X
Fire Safety Permit			X
Lock Out Tag Out (LOTO)			X
Energized Work Permits (EWP - A, B)			X
Permit to Penetrate Surface			X

Work Area Occupational and Environmental Safety and Health

Access and egress	X		
Biohazards			X
Chemical Hygiene and Safety			X
Chemical Management System status			X
Compressed gasses			X
Confined space			X
Cryogenic			X
Electrical			X
Energy			X
Ergonomic considerations			X
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X
Elevated locations and guarding			X
Lasers			X
Lead			X
Machine tools			X
PPE			X
Pressure			X
Soldering			X
Thermal			X
Walking and working surfaces			X
Welding			X
Other Hazards:			X

Radiation Protection

Radioisotope Journal up to date (X-ray Journal)	X		
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping (NOTE: Fixed Area)			X
Exposure Control: shielding (internal)			X
Posting & Labeling: rooms, sinks, equipment	X		

Appendix D - Field Inspection Guide

	REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App
Autoclave			X
Biosafety Cabinet			X
Clean Room			X
Crane Hoist			X
Eyewash / Safety Shower			X
Fire Extinguishers			X
Flammables Cabinet/Refrigerator			X
Fork Lift / Heavy Equipment Operator			X
Fume Hood			X
Glove Box			X
Hand and Shoe Counter			X
Local Exhaust System	X		
Monitoring / Alarm System			X
Photoprocessing Equipment			X
Sonicator			X
Ultracentrifuge			X
Other			
Waste Management			
WAA compliance			X
SAA compliance			X
Environmental Services			
Air emissions			X
Sanitary sewer discharge			X
Storage tanks - aboveground or underground			X
Storm water management			X
Treatment systems			X
Field Interviews			
Knowledge of authorizations, procedures, etc.	X		
Knowledge of safety systems	X		
On-the-job training (Excellent Organization)	X		
Safety concerns, how to communicate concerns	X		
Comments			
Excellent compliance with past and current x-ray safety procedures. The system supervisor maintains all required records in an orderly manner.			
Performed By: Christine Donahue <div style="text-align: center;">Name / Signature</div>		Date: 8/25/2006 <div style="text-align: center;">Date</div>	
Reviewed By: John Seabury <div style="text-align: center;">Name / Signature IFA Team Leader</div>		Date: 12/15/2006 <div style="text-align: center;">Date</div>	

Appendix D - Field Inspection Guide

Authorization Type: Xray Authorization

Date: 10/18/2006

Location(s): 67-4219

Authorization Number/Reference: XA7029

REVIEWED

Administrative	Yes	No	Not Obs/App	
Authorization approved and signed		X		(1)
Authorization current	X			
All users listed on authorization	X			
All users trained in accordance with authorization requirements	X			
Authorization accurately reflects work being conducted	X			
Authorization posted / available in work area			X	
Other:				
Hazardous Work Permits				
Confined Space Permit			X	
Energized Work Permits (EWP - A, B)			X	
Fire Safety Permit			X	
Lock Out Tag Out (LOTO)			X	
Energized Work Permits (EWP - A, B)			X	
Permit to Penetrate Surface			X	
Work Area Occupational and Environmental Safety and Health				
Access and egress	X			
Biohazards			X	
Chemical Hygiene and Safety			X	
Chemical Management System status			X	
Compressed gasses			X	
Confined space			X	
Cryogenic			X	
Electrical	X			
Energy			X	
Ergonomic considerations			X	
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			X	
Elevated locations and guarding			X	
Lasers			X	
Lead			X	
Machine tools			X	
PPE			X	
Pressure			X	
Soldering			X	
Thermal			X	
Walking and working surfaces			X	
Welding			X	
Other Hazards:			X	
Radiation Protection				
Radioisotope Journal up to date		X		(2)
Contamination/Inventory Control: meters, material storage, waste segregation, housekeeping			X	
Exposure Control: shielding, dosimetry, PPE, food/drink			X	
Posting & Labeling: rooms, sinks, equipment	X			

Appendix D - Field Inspection Guide

		REVIEWED		
Equipment Authorization - Certification/calibration/logs	Yes	No	Not Obs/App	
Autoclave			X	
Biosafety Cabinet			X	
Clean Room			X	
Crane Hoist			X	
Eyewash / Safety Shower			X	
Fire Extinguishers			X	
Flammables Cabinet/Refrigerator			X	
Fork Lift / Heavy Equipment Operator			X	
Fume Hood			X	
Glove Box			X	
Hand and Shoe Counter			X	
Local Exhaust System			X	
Monitoring / Alarm System (X-Ray Monitor)	X			
Photoprocessing Equipment			X	
Sonicator			X	
Ultracentrifuge			X	
Other				
Waste Management				
WAA compliance			X	
SAA compliance			X	
Environmental Services				
Air emissions			X	
Sanitary sewer discharge			X	
Storage tanks - aboveground or underground			X	
Storm water management			X	
Treatment systems			X	
Field Interviews				
Knowledge of authorizations, procedures, etc.	X			
Knowledge of safety systems	X			
On-the-job training	X			
Safety concerns, how to communicate concerns	X			
Comments				
(1) Authorization is in the process of being signed off.				
(2) All required documents in order but not placed in radioisotope Journal. PI will remedy.				
Performed By: Kris Szornel <div style="text-align: center;">Name / Signature</div>		Date: 10/18/2006 <div style="text-align: center;">Date</div>		
Reviewed By: John Seabury <div style="text-align: center;">Name / Signature IFA Team Leader</div>		Date: 12/15/2006 <div style="text-align: center;">Date</div>		

Appendix E

Findings and Observations

Building & Room #	Finding or Observation	Authorization	Description	Regulation or Policy Citation	Recommendation or Corrective Action	Entered CATS? Y/N
2-137	F-1	AHD 2062	PI on AHD is not the same as actual PI	PUB-3000, Chapter 6	Revise the AHD to reflect actual management responsibility	No - to be addressed during transition to electronic AHD system
2-137	F-2	AHD 2062	LN dewar needs to be secured against movement	PUB-3000, Chapter 23	Secure it against movement	No
2-258	F-3	AHD GS1061	Silicon tetrafluoride is being used but it is not listed on AHD	LBNL PUB-3000, Chapter 13	Revise the AHD to reflect current conditions of operation	Yes (#2318)
2-258	F-4	AHD GS1061	The grounding wand was installed by the user, but no records are available to demonstrate its adequacy.	29CFR1910.304 (f)(7)(iii)	Verify adequacy of grounding wand by EH&S	Yes (#2317)
2-260A	F-5	AHD 112	Hydrogen detectors not being calibrated	Good practice, required by authorization	Establish detector calibration program within MSD	Yes (#488)
62-127 complex	F-6	AHD 166	There are several minor electrical safety issues that need to be corrected.	29CFR1910 Subpart S	Minor electrical safety issues to be corrected off-line with Tom Caronna	No
62-127 complex	F-7	AHD 166	Interlock testing not documented	Good practice, required by authorization	Establish a process to document the testing of the interlock system.	Yes (#657)
62-127 complex	F-8	AHD 166	Screw holes have been put into the vessel skin for attachment of electrical fixtures, these may not have been considered during pressure rating of the vessel.	PUB-3000, Chapter 7	Evaluate tank for derated pressure due to added screw holes (electrical)	No
62-127 complex	F-9	AHD 166	There is a tube farm of sulfur hexafluoride cylinders that have been analyzed in an Engineering Note, but it is unclear if the analysis included all present conditions.	PUB-3000, Chapter 7	Evaluate existing Engineering Note re: operation of sulfur hexafluoride vessels.	No
62-155	F-10	AHD 148	AHD is presently being rewritten in electronic system, title will change to reflect changes in research since 1994.	n/a	Update to reflect current operations	Yes (#657)
62-155	F-11	AHD 148	Sodium no longer in use, but should add other reactive materials to AHD.	PUB-3000, Chapter 6	Update AHD to reflect current chemicals in use	No

Appendix E

Findings and Observations

Building & Room #	Finding or Observation	Authorization	Description	Regulation or Policy Citation	Recommendation or Corrective Action	Entered CATS? Y/N
62-155	F-12	AHD 148	Forming gas not listed in CMS	LBNL Chemical Hygiene and Safety Plan	Add forming gas to chemical inventory	No
62-155	F-13	AHD 148	Glovebox does not have pressure relief installed	PUB-3000, Chapter 7	Consider adding bubbler to glovebox for pressure relief	No
62-214	F-14	AHD 2093	AHD was for previous laboratory in 62-308, moved to this lab in Spring 2006 but had not updated the AHD to this new location.	PUB-3000, Chapter 6	Rewrite the AHD reflecting present operating conditions	No - to be addressed during transition to electronic AHD system
62-214	F-15	AHD 2093	The upper shelves of the flammable liquid storage cabinets did not have spill retention capability	LBNL Chemical Hygiene and Safety Plan	Provide spill containment trays on upper shelves of flammable liquid storage cabinets	No
62-214	F-16	AHD 2093	Numerous gas cylinders in lab need to be added to chemical inventory system	LBNL Chemical Hygiene and Safety Plan	Add the cylinders to the Chemical Management System	No
62-214	F-17	AHD 2093	Safety glasses are stored in the open	29CFR1910.132	Provide clean, protected storage for all Personal Protective Equipment	No
62-214	F-18	AHD 2093	Liquid waste from the HPLC goes into a collection bottle, but the bottle is not identified as a Satellite Accumulation Area.	LBNL PUB-3092	Establish the collection bottle from the HPLC as a Satellite Accumulation Area	No
62-316	F-19	AHD 2103	Several gas cylinders are not listed in Chemical Management System.	LBNL Chemical Hygiene and Safety Plan	Add the cylinders to the Chemical Management System	No
70A-3345	F-20	AHD 2051	Several compressed gas cylinders were not entered into Chem Management System	LBNL Chemical Hygiene and Safety Plan	Add the cylinders to the Chemical Management System	No